

## **Remarks**

As an initial matter, Applicants appreciate the Examiner's reminder that they have not yet filed a certified copy of the EPO application upon which they base a claim of priority. Applicants also appreciate the previous efforts of the to Examiner retrieve the NPL references.

In the most recent Office Action, the drawings and specification are objected to. Further, independent claim 1, dependant claims 2, 5, 7, 13, 21-25, 27 and 28 (which depend from claim 1), independent claim 29, dependant claims 30 and 31 (which depend from claim 29) and independent claim 32 stand rejected, pursuant to 35 USC § 103, over the Kiselev article in light of the Lagae article.

Dependent claim 17 is objected to as lacking antecedent basis. Dependant claim 3, 4, 6, 8-12, 14-20, 26 and 31 are objected to, but stated as being allowable if properly rewritten in independent form to include all the limitations of the base claim and any intervening claims.

In response, Applicants have submitted replacement sheets for all drawings with this Response. The replacement drawings make minor corrections to the figures, as described above. Further, the specification has been amended to allow a reader to more quickly refer to the appropriate drawing. Claim 17 has been amended in accordance with the Examiner's suggestion, so as to make it dependant on claim 16. Other claims have been amended to substitute the American-English term, polarize, for the UK-English term, polarize, and to make similar substitutions for variations of the term, polarize.

In discussing the three independent claims and the cited Kiselev article, the most recent Office Action states, at page 6:

The only different between the recited invention of claims 1, 29 and 32 is that the means to tune or determine the oscillation frequency (different than the means for providing spin-polarized current) is not explicitly disclosed as integrated. In other words, the magnetic field generator used to tune the oscillator (see Fig. 1(e)) is not explicitly disclosed as ‘integrated’. Lagae discloses an integrated system (see Fig. 1), where the magnetic field generator is integrated with the overall circuit and provides a magnetic field to a sensor ....”

The claimed use of an integrated magnetic field generator is significant. The Kiselev device utilizes an external oscillator, which requires a relatively large magnetic field for operation. The claimed “integrated” device allows the use of a significantly smaller magnetic field.

As indicated above, the Office Action relies upon Lagae article to show an “integrated” magnetic field generator, which is absent in the Kiselev article. However, the Lagae article (authored in part by the above-named Applicant, Liesbet Lagae), describes a very different device than the one claimed: a sensor rather than signal generator.

The integrated magnetic field generator in the sensor described in the Lagae article is used to move particles across the sensor: But the sensor itself does not detect the field of the magnetic field generator. As stated in Fig. 1 (page 7445) of the Lagae article: “The sensor detects only the field generated by the crossing nanoparticles.”

Indeed, the sensor and magnetic field generator do not affect each other. They independent, rather than interactive.

This approach is opposite to the claimed “integrated” element for “interacting” with the magnetic excitable layer. In contrast to the independent operation of the sensor and magnetic field generator disclosed in the Lagae article, the claimed invention uses the interacting element (e.g., magnetic field generator) to tune the magnetic excitable layer (e.g., oscillator). As described in the specification at page 11, lines 30 and following, such interaction is significant because, with this approach, the frequency of the generated oscillations “can not only be selected during designing or production of the device but . . . the frequency also can be selected during use, i.e. that the frequency can be tuned during use.”

Thus, the Lagae article discloses an integrated, but independently operating, magnetic field generator. This approach is substantially different than the claimed device (e.g., magnetic field generator) that interacts with magnetic excitable layer (e.g., oscillator) of the claimed invention in order to obtain significant benefits for tuning.

Accordingly, Applicants submit that the Kiselev and Lagae articles do not show or suggest the claimed, integrated device for interacting with said magnetic excitable layer, nor any device that achieves the same, significant advantages. Indeed, it is unclear that a combination of the devices described in the two articles is appropriate. The magnetic field generator for the Lagae article only has a substantial impact in the “horizontal” direction (with respect to the layers), rather than in a “vertical” direction, as shown, for example, in the drawings of the present application. Accordingly, it is unclear to

Applicants how the magnetic field generator of the Lagae article could be combined, if at all, with the device of the Kiselev article.

Accordingly, Applicants submit that claims 1, 29 and 32 are patentably distinct over both the Kiselev and Lagae articles, whether considered alone or in combination. Further, Applicants submit that the remaining claims, which depend from either Claim 1 or 29, are allowable for the same reasons advanced above with respect to claims 1, 29 and 32.

## **Conclusion**

Applicants believe that all of the pending claims have been addressed in this response. Failure to address a specific rejection or assertion made by the Examiner does not signify that Applicants agree with or concede that rejection or assertion.

Applicants respectfully submit that all pending claims, nos. 1-32, are in condition for allowance. Prompt, favorable action thereon is earnest solicited. The Examiner is invited to call the Applicants' attorney at the number listed below if any questions arise.

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Date: February 17, 2010

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